

Radiological Control Technician Training Technician Qualification Standard



**Coordinated and Conducted
for
Office of Environment, Safety & Health
U.S. Department of Energy**

This page intentionally left blank.

Course Developers

Dave Lent	Coleman Research
Joe DeMers	EG&G Mound Applied Technologies (formerly)
Andy Hobbs	FERMCO
Dennis Maloney	RUST - GJPO
Richard Cooke	Argonne National Laboratory
Bobby Oliver	Lockheed Martin Energy Systems
Michael McNaughton	Los Alamos National Laboratory
Eva Lauber	West Valley Nuclear Services
Michael McGough	Westinghouse Savannah River Corporation
Brian Killand Fluor	Daniel Hanford Corporation

Course Reviewers

Technical Standards Managers	U.S. Department of Energy
Peter O'Connell	U.S. Department of Energy
William D. Ulicny	ATL International, Inc.

This page intentionally left blank.

Table of Contents

	Page
Introduction	1
Purpose of Qualification Standard	1
Phase I: RCT Academics Training	1
Phase II: RCT Core Practical (JPMs) Training	1
Phase III: Oral Examination Board	1
Phase IV: Facility Practical Training	1
Final Qualification	1
Fundamental Academic Lessons	2
Site Academic Lesson/Final Comprehensive Examination	3
Core Job Performance Measures	4
Oral Examination Board/Final Verification Signatures	6

This page intentionally left blank.

Introduction

Purpose of Qualification Standard

The Qualification Standard states and defines the knowledge and skill requirements necessary for successful completion of the Radiological Control Technician Training Program. The standard is divided into four phases:

Phase I: RCT Academics Training

There are 13 lessons associated with the fundamental academics program and 19 lessons associated with the site academics program. The staff member (manager, instructor, designee) should sign the appropriate blocks upon successful completion of the examination for that lesson or group of lessons. In addition, facility specific lesson plans may be added to meet the knowledge requirements in the Job Performance Measures (JPM) of the practical program.

Phase II: RCT Core Practical (JPMs) Training

Successful completion of the oral examination board is documented by the signature of the chairperson of the board.

Phase IV: Facility Practical Training

In addition to the DOE core tasks, each facility should include those tasks that are specific to their facility. Specific tasks may be added or generic tasks deleted based on the results of the facility job evaluation. These tasks can be included within this Qualification Standard or maintained separately.

Final Qualification

Upon completion of all of the technician qualification requirements, final qualification is verified by the student and the manager of the Radiological Control Department and acknowledged by signatures on the qualification standard. The completed Qualification Standard should be maintained as an official training record

Fundamental Academic Lessons Next

Fundamental Academic Lessons

ACKNOWLEDGMENT OF SUCCESSFUL COMPLETION OF FUNDAMENTAL ACADEMIC LESSONS:

FUNDAMENTAL ACADEMIC LESSONS		SIGNATURE	DATE
1.01	Basic Mathematics and Algebra		
1.02	Unit Analysis and Conversion		
1.03	Physical Sciences		
1.04	Nuclear Physics		
1.05	Sources of Radiation		
1.06	Radioactivity and Radioactive Decay		
1.07	Interaction of Radiation With Matter		
1.08	Biological Effects of Radiation		
1.09	Radiological Protection Standards		
1.10	ALARA		
1.11	External Exposure Control		
1.12	Internal Exposure Control		
1.13	Radiation Detector Theory		

Site Academic Lessons/Final Comprehensive Examination Next

Site Academic Lesson/Final Comprehensive Examination

ACKNOWLEDGMENT OF SUCCESSFUL COMPLETION OF SITE ACADEMIC LESSONS:

SITE ACADEMIC LESSON		SIGNATURE	DATE
2.01	Radiological Documentation		
2.02	Communication Systems		
2.03	Counting Errors and Statistics		
2.04	Dosimetry		
2.05	Contamination Control		
2.06	Airborne Sampling Program/Methods		
2.07	Respiratory Protection		
2.08	Radioactive Source Control		
2.09	Environmental Monitoring		
2.10	Access Control and Work Area Setup		
2.11	Radiological Work Coverage		
2.12	Shipment/Receipt of Radioactive Material		
2.13	Radiological Incidents and Emergencies		
2.14	Personnel Decontamination		
2.15	Radiological Considerations for First Aid		
2.16	Radiation Survey Instrumentation		
2.17	Contamination Monitoring Instrumentation		
2.18	Air Sampling Equipment		
2.19	Counting Room Equipment		

	SIGNATURE	DATE
SUCCESSFUL COMPLETION OF:		
FINAL COMPREHENSIVE EXAMINATION		

Core Job Performance Measures Next

Core Job Performance Measures

ACKNOWLEDGMENT OF SUCCESSFUL COMPLETION OF
CORE JOB PERFORMANCE MEASURES:

CORE JOB PERFORMANCE MEASURE		TRAINER/EVALUATOR SIGNATURE	DATE	STUDENT SIGNATURE	DATE
<i>QUALIFICATION AREA: RADIOLOGICAL INSTRUMENTATION</i>					
121	Complete a response check on portable hand held instruments				
122	Complete a performance test on radiation detection equipment				
<i>QUALIFICATION AREA: RADIOLOGICAL PROTECTION</i>					
131	Perform a beta-gamma contamination survey				
132	Perform a radiation survey				
133	Obtain air samples				
134	Perform a leak test on a radioactive source				
135	Post a radiological area to reflect associated hazards				
136	Perform a radioactive material shipment survey				

Continued Next Page

Core Job Performance Measures

JOB PERFORMANCE MEASURE (CONT.)		TRAINER/EVALUATOR SIGNATURE	DATE	STUDENT SIGNATURE	DATE
<i>QUALIFICATION AREA: EMERGENCY PREPAREDNESS</i>					
141	Respond to a high airborne activity alarm				
142	Respond to an uncontrolled release of radioactive material				
143	Respond to a radiation alarm				
144	Respond to an injured person located in a radiological area				
145	Direct and monitor personnel decontamination				

Oral Examination Board/Final Verification Signatures Next

Oral Examination Board/Final Verification Signatures

**ACKNOWLEDGMENT OF SUCCESSFUL COMPLETION OF THE
ORAL EXAMINATION BOARD**

	SIGNATURE	DATE
ORAL EXAMINATION BOARD		

I have verified that I have completed the
above documented academics, practical and
oral board requirement.

RCT Student

Date

I have verified that the academics, practical
and oral board requirements for the above
named individual are satisfactorily
completed and am assured that the
individual is capable of safely performing all
the standard functions of a Radiological
Control Technician.

RC Manager or designee

Date